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Intellectual Property Department
170 Wood Avenue South
Iselin, NJ 08830

EXAMINER

SUNG, GERALD LUTHER

ART UNIT	PAPER NUMBER
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4156

MAIL DATE	DELIVERY MODE
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11/02/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/524,523

Applicant(s)

TIEMANN ET AL.

Examiner

Gerald L. Sung

Art Unit

4156

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 8-15 are objected to because of the following informalities: the accepted term within the pertinent art for a manhole access cover is a combustion chamber panel wall. The examiner suggests clarifying the use of the term manhole access cover in the specification to include the accepted term, combustion chamber panel wall.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 8-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Froemming et al. USPN 5,782,294 (Froemming et al., issued 21 July 1998, hereinafter "Froemming et al.").

4. Regarding claim 8, Froemming et al. discloses:

a gas turbine combustion chamber, comprising:

a manhole to access a combustion chamber interior; (Figures 1-3, see column 1 lines 7-17, 27-32, 41-44, 56-57, column 2 lines 50-55, column 3 lines 51-57)

a manhole cover to seal the manhole; (Figures 1-3, see column 1 lines 7-17, 27-32, 41-44, 56-57, column 2 lines 50-55, column 3 lines 51-57)

Art Unit: 4156

and an inner cooling chamber arranged within the manhole cover.

(Figures 1-3, see column 1 lines 7-17, 27-32, 41-44, 56-57, column 2 lines 50-55, column 3 lines 51-57)

The manhole cover is interpreted as equivalent to a combustion chamber panel wall where access to the combustion chamber can be achieved by removing a panel. Dictionary.com defines the word "panel" as "a distinct portion, section, or division of a wall, wainscot, ceiling, door, shutter, fence, etc., esp. of any surface sunk below or raised above the general level or enclosed by a frame or border." Froemming et al. teaches a cooled liner apparatus in which the "object of the invention is to provide a liner apparatus that may be cooled..." and "...is easily maintained." Referring to Figures 1 and 3, Froemming et al. discloses a wall panel (Figure 3) to be cooled by impingement cooling "...[s]pecifically [where] the cooling air is ducted to a plenum outside the liner and the pressure difference between the cooling air and the core gas flow forces the cooling air through apertures within the liner" (column 1, lines 21-24). Furthermore Froemming et al. teaches a "liner [that] can be readily disassembled and all areas of the liner wall accessed from the inside..." (column 2, lines 50-53).

Art Unit: 4156

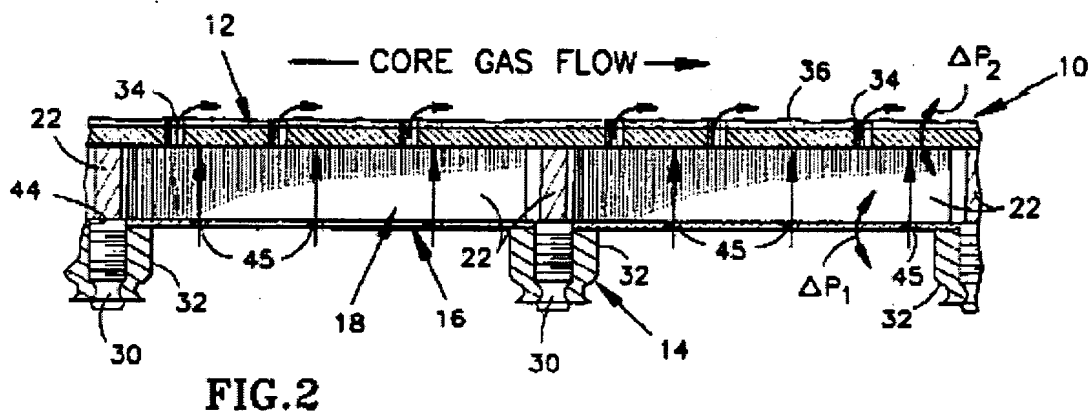
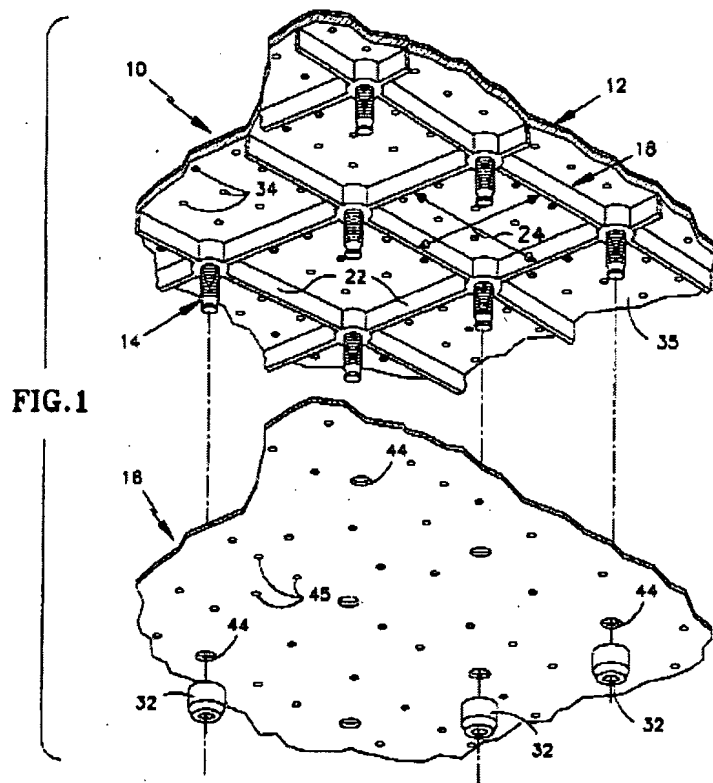
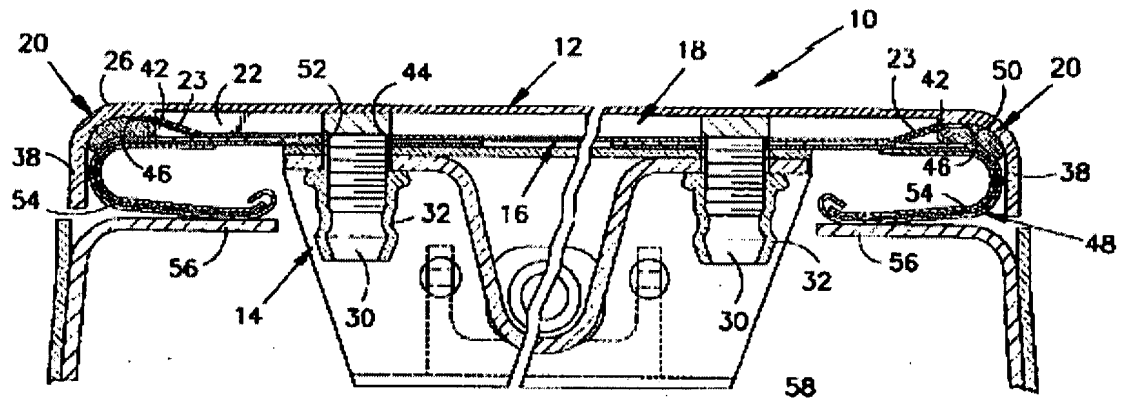


FIG. 3

5. Regarding claim 9, Froemming et al. discloses:

a gas turbine combustion chamber according to Claim 8, wherein a combustion chamber wall has a wall-cooling chamber. (see column 1, lines 11-14)

Froemming et al. states, "it is known to use liners to contain gas flow passing through the core of a gas turbine engine..." (column 1, lines 11-14) where the core of the gas turbine engine is to include the combustion chamber section.

"Every gas turbine engine has a combustion section, a compressor and a turbine. The compressor, burner and turbine are called the core of the engine, since all gas turbines have these components, [wherein the burner is synonymous with combustor]."

Figure 1 discloses a wall section to be used to cool the gas turbine engine core.

6. Regarding claims 10 and 11, Froemming et al. discloses:

a gas turbine combustion chamber according to Claim 9, wherein the inner cooling chamber of the manhole cover is connected for fluid flow purposes to the wall cooling chamber of the combustion chamber wall,

and the gas turbine combustion chamber according to Claim 10, wherein the inner cooling chamber of the manhole cover is directly connected to the wall cooling

Art Unit: 4156

chamber of the combustion chamber wall by inserting the manhole cover into the manhole.

In figure 2 of Froemming et al. the fluid flow enters through the outer wall continues into the chamber and exits out of the inner wall where the directed flow is across the outer surface of the cooling chamber of the combustion chamber wall.

7. Regarding claims 12 and 13, Froemming et al. discloses:

a gas turbine combustion chamber according to Claim 11, wherein a fixing element which supports a cover element of the manhole cover against the combustion chamber interior,

and simultaneously holds a liner element adjacent to the manhole cover against the combustion chamber wall and the gas turbine combustion chamber according to claim 12, wherein the cross-section of the fixing element is essentially U-shaped, whereby a first side of the U supports the cover element and a second part of the U holds the liner element.

Froemming et al. discloses, in Figure 1, a "plurality of fasteners (30) extending out from the inner wall..." (column 2 lines 20-27) that supports the liner element 10 against the panel (shown in Figure 3). The fasteners (30) are shown to hold the panel interior walls (12) to the panel (Figure 3). When the panels (Figure 3) are assembled to form a liner apparatus for an engine core, the fasteners would hold the panels adjacent to each other in a manner depicted in Figure 1. Furthermore, Figure 3 indicates a U-shaped plenum support, which is connected to a liner (10) and a panel (Figure 3) via

Art Unit: 4156

two crimp studs (30) and a crimp nut (32). As illustrated in Figure 3, the support serves to support the liner (10) to the panel (Figure 3). The U-shaped support provides support to the liner and panel in a different manner than that by the applicant; however, as broadly worded, the claim fails to distinguish over the support as disclosed by Froemming.

8. Regarding claim 14, Froemming et al. discloses:

a gas turbine combustion chamber according to Claim 13, wherein an element of the fixing element projects into the manhole such that a cover liner of the manhole cover is supported against the combustion chamber interior, and the manhole cover can be removed from the manhole.

Referring to Figure 1, Froemming et al. teaches a liner apparatus whose fasteners (30) are shown to be supporting adjacent panel elements against each other such that the liner elements 10 are flush. The fasteners (30) are shown to be inside the panel (Figure 3) in a manner where when the fasteners are removed, the panel may be removed. Froemming et al. explicitly intends for the prior art to "be readily disassembled and all areas of the inner wall accessed from the inside" (column 2, lines 50-54).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 4156

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

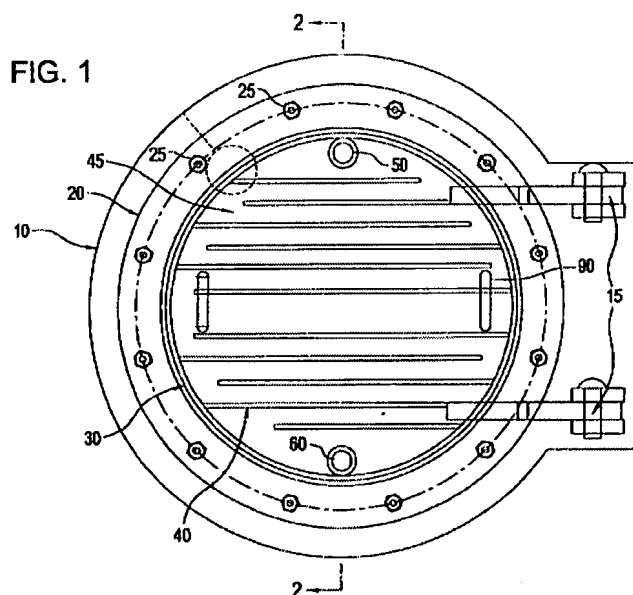
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 8, 9, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Babcock et al. GB 626,249 in view of Albrecht et al. USPN 6,415,724 B1 (Babcock et al., issued 12 July 1949, hereinafter "Babcock et al.", Albrecht et al., issued 9 July 2002, hereinafter "Albrecht et al.).

12. In claim 8, Babcock et al. teach all elements in claim 8 except an inner cooling chamber within a manhole access that is directly connected to the wall-cooling chamber of the combustion chamber wall when the manhole access is closed. Babcock et al. disclose an "invention... [for] a combustion chamber... [where] a wall opening is provided through which access may be had to the interior..." (see page 1, lines 17-37). Babcock et al. further teach "an improved arrangement of door and door frame member for sealing or unsealing an opening in a chamber wall" (see page 1 lines 60-64). Babcock et al. include in the specifications, that the scope of the invention may be applied to boilers of the kind having a combustion chamber. Albrecht et al. teaches "[a]n access door for a boiler or furnace [having] a water-cooled jacket mounted on a door

Art Unit: 4156

panel frame for use in high temperature regions of furnaces and boilers" (see abstract).



Albrecht et al. explicitly teaches the "object of the invention is to provide an access door which can withstand extreme furnace and boiler temperatures of between 2600 °F and 3300 °F in the regions adjacent burner zones" (see column 1, lines 60-64). Babcock et al. disclose that the scope of the invention can be applied to boilers of the kind having a combustion chamber. A person of ordinary skill in the art would be motivated to combine the elements in Babcock et al. and Albrecht et al. to solve the need for an access point for maintenance in high temperature combustion chambers. It would have been obvious to a person of ordinary skill in the art from the teachings of Albrecht to modify the combustion chamber of Babcock et al. to provide means for cooling the door to withstand extreme temperatures greater than 2600°F.

13. In claim 9, Babcock et al. discloses in boilers of the kind having a combustion chamber, "... the enclosing walls are often fluid cooled to provide protection from high

Art Unit: 4156

furnace temperatures" (page 1, lines 27-36). Babcock et al. teach a combustion chamber with cooled walls. A person of ordinary skill in the art would have been motivated to combine the elements in Babcock et al. and Albrecht et al. to solve the problem of cooling the chamber walls. It would have been obvious to a person of ordinary skill in the art to modify the combustion chamber in Babcock et al. with the cooled door taught by Albrecht et al. to yield the predictable result of providing access doors that are better able to withstand temperatures greater than 2600°F.

14. In claims 10 and 11, Babcock et al. disclose a "closure means... wherein at least one port is provided for the admission of cooling gaseous fluid to the passage through the door frame member when the door is closed" (see page 6, lines 20-25). Babcock et al. provide in their disclosure a method for which cooling gaseous fluid is admitted to the passageway when the door is closed. Although both the wall cooling elements disclosed in Babcock et al. and the cooled door taught in Albrecht appears to be independent closed systems, when viewed in combination, it would be predictable to combine the two cooling systems. A person of ordinary skill in the art would have been motivated to combine the elements in Babcock et al. and Albrecht et al. because it would have been predictable to yield a more cost effective and efficient system by combining the two separate systems into one. Therefore, it would have been obvious to a person of ordinary skill in the art to modify Babcock et al. as previously modified by Albrecht et al. to include a single continuous and connected combustion chamber cooling element.

15. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Babcock et al. GB 626,249 in view of Albrecht et al USPN 6,415,724 B1 as applied to

Art Unit: 4156

claim 11 above, and further in view of Halila et al. USPN 5,333,443 (Halila et al., issued 2 August 1994, hereinafter "Halila et al.").

16. Regarding claims 12 and 13, Babcock et al. as previously modified by Albrecht et al teaches all elements except for the u-shaped fixing element that holds and supports the liner adjacent to the manhole cover against the combustion chamber wall. Referring to Figures 3 and 4, Halila et al. teach a "U-shaped hollow cap (80)... that can be used alone for supporting the lugs (68) to the outer frame (44)" (column 7, lines 46-50). From Figures 3 and 4, Halila et al. teach the U-shaped support fixing and holding the adjacent liner elements (66a and 66b) against each other in a manner where one side of the U-shaped support supports the first liner element (66a) and the second side supports the adjacent liner element (66b). The fastener (74) is set in a manner where the U-shaped support (80) is fixed to the outer walls of combustion chamber. When applied to the door taught by Albrecht, the U-shaped support would support the door sections and the wall sections, while simultaneously sealing them. A person of ordinary skill in the art would have been motivated to combine the elements in Babcock et al. and Albrecht et al. as previously modified with the elements in Halila et al. to solve the problem of sealing and supporting an access point for maintenance. Therefore, it would have been obvious to a person of ordinary skill in the art to modify the elements in Babcock et al. and Albrecht et al. as previously modified with the elements in Halila et al. to provide proper sealing and support for an access point for maintenance within the combustion chamber.

17. Regarding claim 14, the U-shaped support (80) is shown to protrude into the wall elements such that when the fastener (74) is removed, the U-shaped support (80) is able to be removed and the door can be opened. The U-shaped support (80) is placed on the outer wall so that the support (80) and the fastener (74) can be readily accessible and removable. A person of ordinary skill in the art would have been motivated to combine the elements in Babcock et al., Albrecht et al., and Halila et al. as previously modified to solve the problem of providing a U-shaped support to seal and support the access point for maintenance while simultaneously allowing the door to be removed. Therefore, it would have been obvious to a person of ordinary skill in the art to combine the elements in Babcock et al., Albrecht et al., and Halila et al. as previously modified to provide a U-shaped support to seal and support an access point for maintenance without severely hindering the functionality of the door.

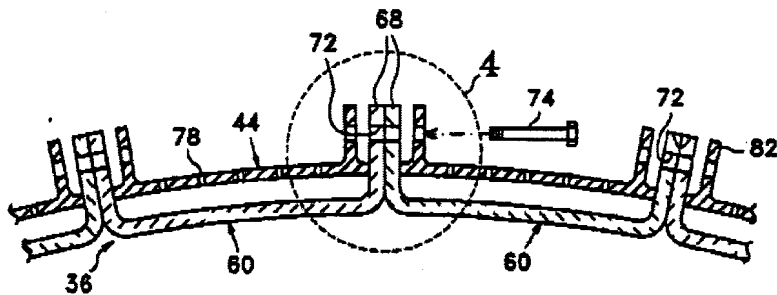
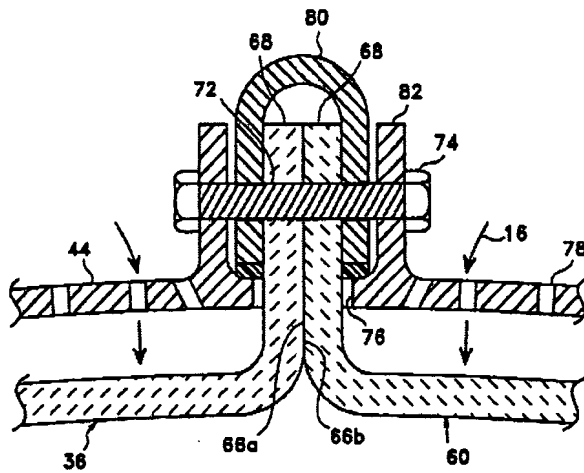


Fig. 3

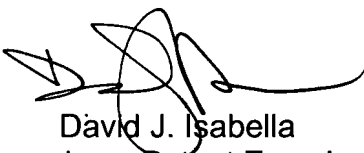
**Fig. 4****Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gerald L. Sung whose telephone number is (571) 270-3765. The examiner can normally be reached on M-F 9am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J. Isabella can be reached on (571) 272-4749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system: Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gerald Sung
Patent Examiner



David J. Isabella
Supervisory Patent Examiner

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10/20/2007